

We claim:

1. In a packet radio communication system for communicating packet data, an improvement of an integrator for integrating operation of a first packet data system having at least a first packet-data-system element with operation of a second packet data system having at least a second packet-data-system element, thereby to form an integrated system of the packet radio communication system, said integrator comprising:

an integration element at least functionally coupled between the first packet-data-system element and the second packet-data-system element, said integration element for relaying packet data between the first packet-data-system element and the second packet-data-system element, the packet data of any selected information-element type of a plurality of element types defined in either of the first packet data system and the second packet data system.

2. The integrator of claim 1 wherein the packet radio communication system comprises a network infrastructure including a first fixed-site transceiver and at least a second fixed-site transceiver with which a mobile station is selectably connectable thereto by way of a radio link and wherein said integration element further maps identities of the first and at least second fixed site transceiver defined in the first packet data system to corresponding identities defined in the second packet data system.

3. The integrator of claim 2 wherein the packet radio communication system further comprises an interworking element (IWE) coupled to the first and at least second fixed site transceivers and wherein a portion of said integrator is embodied at the IWE.

4. The integrator of claim 3 wherein said integration element comprises a memory element forming a table, the table containing the identities of the first and at least second fixed site transceivers defined in the

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first packet data system and, indexed thereagainst, the identities of the first  
5 and at least second fixed site transceivers defined in the second packet data  
system.

5. The integrator of claim 2 wherein a portion of said integration  
element is embodied at the mobile station.

6. The integrator of claim 5 wherein the second packet data system  
comprises a WLAN (Wireless Local Area Network), wherein the first fixed-  
site transceiver and the at least second fixed-site transceiver comprise access  
points of the WLAN, and wherein the mobile station, at which a portion of  
5 said integration element is embodied, performs association operations  
selectably to form radio links with the access points.

7. The integrator of claim 6 wherein the packet radio  
communication system further comprises an interworking element (IWE)  
coupled to the first and at least second fixed-site transceivers and an Ethernet  
connection for coupling said IWE thereto and wherein the mobile station, at  
5 which a portion of said integration element is embodied, further performs cell  
identification request operations selectably to identify the mobile station to  
the IWE.

8. The integrator of claim 7 wherein the cell identification request  
operations further associate the mobile station with a cell identifier, the cell  
identifier defined pursuant to the first packet data system.

9. The integrator of claim 8 wherein said IWE further comprises a  
table, the table for storing indications of a n identity of the mobile station and  
the cell identifier, the cell identifier indexed against the identity of the mobile  
station.

10. The integrator of claim 9 wherein the mobile station is identified  
by a MAC address.

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11. The integrator of claim 10 wherein the first packet-data-system element comprises a LLC logic layer and wherein said integration element further transports a Temporary Logic Link Identifier (TLLI) between the LLC logic layer and the second packet-data-system element.

12. The integrator of claim 11 wherein said integration element further generates a page message to page the mobile station, the page message generated at an access point corresponding to the cell identifier identified in the table formed at said IWE.

13. The integrator of claim 12 wherein the portion of said integration element located at the mobile station responds to the page message with a response message, the response message including indications of the TLLI, the TLLI identifying the mobile station.

14. The integrator of claim 12 wherein the portion of said integration element located at the mobile station further selectably transmits a communication suspend message to the IWE, the communication suspend message for requesting suspension of communication of data to the mobile station.

15. The integrator of claim 14 wherein the portion of said integration element located at the mobile station further selectably transmits a communication resume message to the IWE, the communication resume message for requesting resumption of communication of data to the mobile station.

16. In a method for communicating packet data in a radio communication system having a network infrastructure including a first fixed-site transceiver and at least a second fixed-site transceiver with which a mobile station is selectably connectable by way of a radio link, an improvement of a method for integrating operation of a first packet data system having at least a first packet-data-system element with operation of a

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second packet data system having at least a second packet-data-system element, thereby to form an integrated system of the packet radio communication system, said method comprising:

20 mapping identities of the first and at least second fixed-site transceivers defined in the first packet data system to corresponding identities defined in the second packet data system;

relaying packet data between the first packet-data-system element and a selected one of the first and at least second fixed-site  
25 transceivers, the packet data of any selected information-element type of a plurality of element types defined in either of the first packet data system and the second packet data system.

17. The method of claim 16 wherein said operation of mapping comprises:

indexing the identities of the first and at least second fixed site transceivers defined in the first packet data system against the  
5 identities of the first and at least second fixed-site transceivers defined in the second packet data system.

18. The method of claim 17 wherein said operation of relaying comprises accessing the identities of the first and at least second fixed-site transceivers indexed during said operation of indexing, thereby to identify the first and second fixed-site transceivers in terms of a selected one of the first  
5 and second packet data systems.

~~19.~~ In a packet radio communication system defined in terms of local layers, an improvement of an integrator for integrating operation of a first packet data system having at least a first packet-data-system local layer and a second packet data system having at least a second packet-data-system  
5 logical layer, said integrator comprising:

an integration logical layer logically positioned between the first packet-data-system logical layer and the second packet-data-system

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logical layer, said integration logical layer for relaying packet data between the first packet-data-system logical layer and the second packet-data-system  
10 logical layer, the packet data of any selected information-element type of a plurality of element types defined in either of the first packet data system and the second packet data system.

20. The integrator of claim 19 wherein the first packet data system comprises a GPRS (General Packet Radio Service) system, wherein the second packet data system comprises an IEEE 802-11 standard-compliant WLAN (Wireless Local Area Network) system and wherein said integration logical  
5 layer comprises a WLAN integration protocol layer layered above a logical layer of the IEEE 802.11 standard-compliant WLAN system and layered beneath a logical layer of the GPRS system.

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